reasonable emissions reductions when tested in a vehicle on a chassis dynamometer. However, such a mixture is not stable at a surfactant to water ratio of only 0.25:1 and has not been adopted in the real world. --

In the OBJECTS OF THE INVENTION:

1. Please replace the paragraph beginning at page 3, line 8, with the following amended paragraph:

-- It is an object of this invention to provide additional water to liquid hydrocarbon fuels in the form of a stable micro-emulsion containing such water to enhance fuel efficiency. --

In the DESCRIPTION OF PREFERRED EMBODIMENT:

1. Please replace the paragraph beginning at page 3, line 13, with the following rewritten paragraph:

-- Fuel additive compositions are formulated which can be mixed with commercially available liquid hydrocarbon fuels (such as gasoline, diesel fuel, kerosene or jet fuel) to form stable "water-in-oil" type micro-emulsions. Improved combustion and fuel efficiency can be achieved by adding 20 to 500ppm of the additive into the hydrocarbon fuels. Long term stability of this low dose level micro-emulsion fuel is achieved by using high surfactant to water ratios in the additive from about 8:1 to 0.5:1 and more preferably from about 3:1 to 1:1. --

2. Please replace the paragraph beginning at page 3, line 21, with the following rewritten paragraph:

-- The fuel additive composition should comprise in admixture form, from about 10% to 60% (preferably 20% to 50%) by weight of water; from about 30% up to 80% (preferably 40% to 70%) by weight of a surfactant selected from the group consisting of amphoteric, anionic, cationic and non-ionic surfactants (preferably selected from the group consisting of amine alkylbenzene sulphonate, POE [20] sorbitan monooleate, tall oil fatty acids, oleyl imidazoline hydrochloride and oleamide diethanolamine); from 0% to 30% (preferably 10% to 20%) by weight of a co-surfactant selected from the group consisting of alcohols, glycols, and ethers (preferably selected from the group consisting of C1 to C4 alcohols, C2 to C3 glycols and glycol ethers); and from about 0 to about 30% (preferably 0%) by weight of a hydrocarbon solvent (preferably kerosene). --

3. Please replace the paragraph beginning at page 4, line 7, with the following rewritten paragraph:

-- When the fuel additive dose level becomes so low that the background quantity of dissolved water in the fuel starts to become significant, then it is critical to increase the surfactant to water ratio in the additive to compensate for the extra water in the fuel. --

4. Please replace the paragraph beginning at page 4, line 9, with the following rewritten paragraph:

-- A fuel composition, intended to be combusted in internal combustion machines, is prepared by mixing the above described fuel additive composition at a dose level from about 20 to 500ppm (preferably 20 to 250ppm) in a liquid hydrocarbon fuel (preferably from the group comprising gasoline, jet fuel, kerosene and diesel fuel). --

5. Please replace the paragraph beginning at page 4, line 22, with the following amended paragraph:

-- Internal combustion engines normally show variations in the maximum cylinder pressure and rate of pressure rise from cycle to cycle which is known as cyclic dispersion. This is due to variations in turbulence between cycles which vary flame speeds across the combustion chamber. The inventive micro-emulsion when existing within the body of the fuel tends to reduce these cyclic dispersions. This in turn results in a smoother running engine with lower emissions, improved fuel economy and reduced engine octane requirements. --

6. Please replace the paragraph beginning at page 5, line 10, with the following amended paragraph:

-- Thus, even an extremely small but beneficial effect at the on-set of combustion has a disproportionally large effect upon the manner in which the combustion subsequently progresses. This mechanism has not been appreciated and utilized by others in the past. --

7. Please replace the paragraph beginning at page 6, line 21, with the following amended paragraph:

-- The prior art teaches adding 10,000 ppm of emulsified water together with 5,000 ppm of surfactant which renders the background level of 100 ppm of dissolved water of no significance. However, for the present invention, this background level has significance and is not overwhelmed by addition of for example 30 ppm of emulsified water together with 75 ppm of surfactant. Knowledge of the solubility constant for the class of fuel to be treated is an important essential so that the level of background water is considered and factored into the addition. The ratio of surfactant to water is increased as necessary so that subsequent to mixing with the fuel, the ratio of surfactant to water are within the preferred ratios. --

8. Please replace the paragraph beginning at page 7, line 19, with the following rewritten paragraph:

-- Because only a small quantity of fuel additive composition is used in the hydrocarbon fuel (20 to 500ppm), it can be used like a conventional fuel additive in

already existing and commercially available liquid hydrocarbon fuels. This results in several significant advantages. Even with the high ratio of surfactant to water employed in the additive, the low dose level results in a corresponding low treatment cost. Relative to the fuel savings, this gives a very cost effective product. Also, with less surfactant being used per gallon of fuel (relative to other treatments) there are less emissions from incomplete combustion of surfactants. Even if over time the micro-emulsion breaks down, the amount of released water is not large and can easily be absorbed by the fuel. The expected benefits may be lost but no damage to the engine will occur which could lead to possible product liability claims. The smaller volumes involved with these additives are more readily acceptable to oil refineries and fuel distribution centers because the hardware already exists to incorporate other types of additives on this scale into the base fuels. If the whole fuel had to be emulsified and mixed after the refining process; the complexity and effort would dictate against employment. --

9. Please replace the table beginning at page 9, line 6, with the following amended table:

-- Liquid	Preferred Ratio	Ratio Range
Surfactant(s)	3.0 to 1.0	8.0 to 0.5
Co-surfactant(s)	1.0 to 0.5	2.0 to 0.0
Water	1.0	1.0 --

10. Please replace the paragraph beginning at page 9, line 15, with the following amended paragraph:

-- Pre-diluting the concentrated additive (to reduce its viscosity) with a hydrocarbon solvent (typically kerosene) at the ratio of from 50:1 up to 1:50 can be used to improve the additive/fuel mixing. Without adequate mixing, performance improvements may take as long as 24 hours for the concentrate to properly form into an effective emulsion after simply pouring the additive into a liquid hydrocarbon fuel. --

11. Please replace the paragraph beginning at page 9, line 22, with the following rewritten paragraph:

-- Treatment levels of concentrated micro-emulsion forming additive in the liquid hydrocarbon fuel should fall within the range from about 20 to 500ppm. With more than about 500ppm of additive, the process costs too much relative to the fuel savings. With less than about 20ppm of additive, there is generally too little surfactant present for the fuel emulsion to have any long term stability. This is because the background level of dissolved water (typically 75ppm) already present in most commercially available fuels will eventually produce an unstable fuel emulsion (insufficient surfactant to water ratio). --

12. Please replace the table beginning at page 31, line 12, with the following amended table:

-- TABLE 6 (Performance Analysis Tests #1 through #20)

				Emissions Reduction			
Test #	(%) Cost	(ppm) Water	(%) MPG	(%) HC	(%) CO	(%) NOX	(%) PM
1	55	50	10	20	–	–	–
2	17	50	6	–	–	5	15
3	51	50	10	60	–	–	–
4	95	50	–	–	–	3	6
5	99	50	4	6	–	–	–
6	25	50	10	50	–	–	–
7	89	50	2	90	–	–	–
8	52	50	5	45	–	–	–
9	88	50	2	–	–	6	23
10	42	50	10	40	–	–	–
11	56	50	6	–	–	5	18
12	100	50	10	50	–	–	–
13	11	32	–	13	10	36	–
14	7	20	10	80	–	–	–
15	2	5	2.5	50	–	–	–
16	23	42	12	52	85	1	–
17	18	85	–	98	+35	95	–
18	9	22	14	49	–	9	22
19	11	0	–	–	–	5	15
20	7	95	10	90	–	–	–

In the CLAIMS:

Please cancel the claims of record (1 to 19) and substitute new claims 20 to 35 as follows:

20. A fuel additive composition intended to be used at a dose level of from about 20 to about 500ppm by weight in liquid hydrocarbon fuels combusted in internal combustion machines, said composition comprising, in admixture form:

(a) from about 10 to about 60% by weight of water;

(b) from about 30 to about 80% by weight of a surfactant selected from the group consisting of:

(i) non-ionic

(ii) anionic

(iii) cationic

(iv) amphoteric and

(v) combinations of one or more of said (i) through (iv) surfactants;

(c) from about 0 to about 30% by weight of a co-surfactant selected from the group consisting of:

(i) C.sub.1 to C.sub.4 alcohols

(ii) C.sub.2 to C.sub.3 glycols

(iii) glycol ethers and

(iv) combinations of one or more of said (i) through (iii) co-surfactants;

(d) from about 0 to about 30% by weight of a hydrocarbon solvent.

21. The fuel additive composition of claim 20 wherein the water comprises from about 20 to about 50% by weight of said composition.

22. The fuel additive composition of claim 20 wherein the surfactant comprises from about 40 to about 70% by weight of said composition.

23. The fuel additive composition of claim 20 wherein the co-surfactant comprises from about 10 to about 20% by weight of said composition.

24. The fuel additive composition of claim 20 wherein the hydrocarbon solvent is kerosene.

25. The fuel additive composition of claim 20 wherein the surfactant is a combination of amine alkylbenzene sulphonate, POE (20) sorbitan monooleate, tall oil fatty acids, oleyl imidazoline hydrochloride and oleamide diethanolamine.

26. The fuel additive composition of claim 20 wherein the co-surfactant is a combination of methanol, ethylene glycol n-butyl ether and dipropylene glycol methyl ether.

27. A liquid fuel composition intended to be combusted in internal combustion machines, said fuel composition comprising:

(a) from about 999,500 to about 999,980ppm by weight of a commercially available liquid hydrocarbon fuel;

(b) from about 10 to about 400ppm by weight of a surfactant selected from the group consisting of:

(i) non-ionic
(ii) anionic
(iii) cationic
(iv) amphoteric and
(v) combinations of one or more of said (i) through (iv) surfactants;

(c) from about 0 to about 100ppm by weight of a co-surfactant selected from the group consisting of:

(i) C.sub.1 to C.sub.4 alcohols
(ii) C.sub.2 to C.sub.3 glycols
(iii) glycol ethers and
(iv) combinations of one or more of said (i) through (iii) co-surfactants;

(d) from about 0 to about 150ppm by weight of a hydrocarbon solvent;

(e) from about 5 to about 95ppm by weight of micro-emulsified water, such that the weight ratio of said surfactant to said micro-emulsified water falls within the range of from about 8:1 to about 0.5:1.